ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF PAGES 12

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

1. DATE OF ORDER: 09/26/2012	2. CONTRACT NO. (If any): EP-W-11-009
3. ORDER NO.: 0016	4. REQUISITION/REFERENCE NO.: See Schedule

5. ISSUING OFFICE (Address correspondence to):
HPOD
US Environmental Protection Agency
Headquarters Procurement Operations
Ariel Rios Building
1200 Pennsylvania Avenue, NW
Washington DC 20460

6. SHIP TO:
a. NAME OF CONSIGNEE: Cheryl R. Brown
b. STREET ADDRESS: US EPA Headquarters--Ariel Rios Bld
1200 Pennsylvania Ave NW / MC 1804A
Phone:202-566-0940
Email: Brown.cherylr@Epa.gov
c. CITY: Washington | d. STATE: DC | e. ZIP CODE: 20460

7. TO: NA
a. NAME OF CONTRACTOR: RENAISSANCE PLANNING GROUP, INC.
b. COMPANY NAME:
c. STREET ADDRESS: 121 S ORANGE AVE STE 1200
d. CITY: Orlando | e. STATE: FL | f. ZIP CODE: 32801

f. SHIP VIA:

8. TYPE OF ORDER
☐ a. PURCHASE
REFERENCE YOUR:
Please furnish the following on the terms and conditions specified on both sides of this order and on the attached sheet, if any, including delivery as indicated.
☒ b. DELIVERY
Except for billing instructions on the reverse, this delivery order is subject to instructions contained on this side only of this form and is issued subject to the terms and conditions of the above-numbered contract.

9. ACCOUNTING AND APPROPRIATION DATA: See Schedule	10. REQUISITIONING OFFICE: HPOD

11. BUSINESS CLASSIFICATION (Check appropriate box(es))
☒ a. SMALL ☐ b. OTHER THAN SMALL ☐ c. DISADVANTAGED ☐ d. WOMEN-OWNED ☐ e. HUBZone
☐ f. SERVICE-DISABLED VETERAN-OWNED ☐ g. WOMEN-OWNED SMALL BUSINESS (WOSB) ELIGIBLE UNDER THE WOSB PROGRAM ☐ h. EDWOSB

12. F.O.B. POINT: Destination

13. PLACE OF		14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date)	16. DISCOUNT TERMS
a. INSPECTION	b. ACCEPTANCE			
Destination	Destination			

17. SCHEDULE (See reverse for Rejections)

ITEM NO. (a)	SUPPLIES OR SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	DUNS Number: (b)(4) Task Order #0016: Enhancing EPA's Smart Location Database and Performance Indicator TOPO: Brett Van Akkeren Max Expire Date: 01/25/2013 Continued ...					

18. SHIPPING POINT
19. GROSS SHIPPING WEIGHT
20. INVOICE NO.
17(h) TOTAL (Cont. pages): $0.00

21. MAIL INVOICE TO:
a. NAME: RTP Finance Center
b. STREET ADDRESS (or P.O. Box): US Environmental Protection Agency
RTP-Finance Center (D143-02)
109 TW Alexander Drive
c. CITY: Durham | d. STATE: NC | e. ZIP CODE: 27711

SEE BILLING INSTRUCTIONS ON REVERSE

17(i) GRAND TOTAL: $64,840.80

22. UNITED STATES OF AMERICA BY (Signature):

23. NAME (Typed): Jody Gosnell
TITLE: CONTRACTING/ORDERING OFFICER

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

DATE OF ORDER	CONTRACT NO.	ORDER NO.
09/26/2012	EP-W-11-009	0016

ITEM NO. (a)	SUPPLIES/SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	Admin Office: HPOD US Environmental Protection Agency Headquarters Procurement Operations Ariel Rios Building 1200 Pennsylvania Avenue, NW Washington DC 20460 Period of Performance: 09/26/2012 to 01/25/2013 Contract Ceiling and Funding for BASE Period					
0001	Technical Assistance under EP-W-11-009, Task Order #0016: Enhancing EPA's Smart Location Database and Performance Indicator to be performed in accordance with the attached Statement of Work and the vendor's proposal dated July 27, 2012. Ceilings and Funded Amounts: Cost: (b)(4) Fee: (b)(4) CPFF: $64,840.80 Requisition No: PR-OA-12-00150, PR-OA-12-00286, PR-OSWER-12-00697 Accounting Info: 12-E4-D100AG7-301D79-2505-GQ00BZ00-12D 1D2E039-001 BFY: 12 Fund: E4 Budget Org: D100AG7 Program (PRC): 301D79 Budget (BOC): 2505 Job #: GQ00BZ00 DCN - Line ID: 12D1D2E039-001 Funding Flag: Partial Funded: $30,000.00 Accounting Info: 12-13-B-11W-301MA4-2505-1211W21130-001 BFY: 12 EFY: 13 Fund: B Budget Org: 11W Program (PRC): 301MA4 Budget (BOC): 2505 DCN - Line ID: 1211W21130-001 Funding Flag: Partial Funded: $14,923.45 Accounting Info: 12-13-B-11W-301MA4-2505-1211W21070-001 BFY: 12 EFY: 13 Fund: B Budget Org: Continued ...					

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

DATE OF ORDER	CONTRACT NO.	ORDER NO.
09/26/2012	EP-W-11-009	0016

ITEM NO. (a)	SUPPLIES/SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	11W Program (PRC): 301MA4 Budget (BOC): 2505 DCN - Line ID: 1211W21070-001 Funding Flag: Partial Funded: $19,917.35					

TOTAL CARRIED FORWARD TO 1ST PAGE (ITEM 17(H)) $0.00

Statement of Work
Contract Number: EP-W-11-009/EP-W-11-010/EP-W-11-011
RFO Number: 16

I. TITLE: Enhancing EPA's Smart Location Database and Performance Indicator

II. PERIOD OF PERFORMANCE: Issuance to January 25 2013

III. BACKGROUND:

Research studies indicate that the location of new homes and businesses can have an enormous effect on the travel behavior of people who will live and work there. For example, buildings in walkable communities that are well-served by transit can support a far greater variety of transportation choices than those in more automobile-dependent locations. Focusing new development in such areas can help reduce motor vehicle emissions and water pollution from roadway run-off. There is a growing demand among communities and facility managers for data products and tools that enable users to consistently compare multiple places based on characteristics of the build environment and urban form that shape travel behavior. In 2011 EPA's Office of Sustainable Communities began work to address this need through the development of the Smart Location Database (SLD). A beta version of this database (SLDv0.2b) was released publically in January 2012.[1] SLDv0.2b characterizes every Census 2000 block group in the U.S. using several variables which are demonstrated in the transportation research literature to have a measureable effect on travel demand. These variables are all related to factors known as the "five Ds" (Cervero and Kockelman 1997; Ewing et al. 2007): *density* (of population, housing, or jobs), land use *diversity*, urban *design*, *destination* accessibility, and *distance* to transit. Whereas many residential travel demand studies focus on accessibility of residential locations to jobs, SLDv0.2b also characterizes the accessibility of a location to working-age population. This latter category of variables may be of use in employment facility siting decisions.

SLDv0.2b is currently being used by EPA's Office of Sustainable Communities in collaboration with Office of Solid Waste and Emergency Response to evaluate the potential air and water quality impacts of redeveloping brownfields that have received EPA assistance. For instance, using the D measures it is possible to roughly compare the Vehicle Miles Traveled (VMT) generated by new households in redeveloped brownfields properties when compared to new households in the fastest growing areas of the same metropolitan region. SLDv0.2b has also been used to develop a model for estimating new impervious surface area associated with residential and commercial development based on location. This model is being used to compare impervious surface growth associated with brownfield redevelopment when compared to the alternative likely development scenario.

EPA is currently exploring how we can make future versions of the SLD freely accessible to practitioners by direct download and Web service. We hope that making this data freely available will make it cheaper and easier for communities to conduct travel demand or scenario planning

[1] A zip file with the entire SLD geodatabase, a detailed technical report, and a data dictionary is available for download at https://edg.epa.gov/data/Public/. Click to expand the "Office of Policy" folder. The file is named SLDv02b.zip.

analyses. Access to this data would be particularly helpful to local and regional governments that lack extensive GIS capabilities and/or sophisticated travel forecasting models.

In addition to raw data about "D" variables, non-technical users of the data need simplified metrics representing the overall performance of a place in terms of its ability to support sustainable travel choices. For instance, the General Services Administration seeks to develop a location efficiency key performance indicator for use in consistently assessing individual federal facilities as well as proposed federal facility locations. GSA also requires the ability to identify facilities that perform significantly worse than the regional average in terms of location efficiency. Such an indicator would support GSA and its clients in meeting their sustainability goals under Executive Order 13514 and other directives. EPA is working with GSA to develop this indicator, drawing on the Smart Location Database.

To date there have been only a limited number of studies that measure the effect of the built environment on attracted trips at the workplace location. EPA's work to eventually develop a sustainable location performance indicator for workplaces requires first surveying and expanding on previous research in order to develop more robust quantitative measures that can be generalized for metropolitan regions across the U.S.

IV. PURPOSE AND OBJECTIVE:

There are ~~three~~ two key objectives that this Task Order will address. First, is to develop a new version of the SLD using Census 2010 geographic boundaries. The purpose of this activity is to make the SLD easier to update as new Census data become available and to incorporate new variables known to have a significant effect on attracted trips at the workplace location. For some of the regional accessibility metrics, the data values in SLDv0.2b, we are looking for a simple reaggregation to the new 2010 boundaries (see task description below for details). Some other metrics will need to be gathered and/or recalculated from scratch. Specifically, EPA is aware that the intersection density metric currently available in SLDv0.2b has both technical and conceptual problems that need to be addressed to improve its accuracy, reliability, and usability. Additionally, the land use diversity metric may benefit from considering a larger set of employment categories. Since EPA will be asking the contractor to make technical recommendations regarding ~~minor~~ refinements to metric calculations that will enhance the usability of the SLD for transportation practitioners, the personnel working on this Task Order will need to demonstrate considerable experience working with "D" variables in travel demand studies.

This Task Order will also expand the new SLD by adding additional demographic and socioeconomic variables relevant to travel demand. See Attachment A.

~~The second objective of this task order is to develop a new performance indicator that can be used to consistently compare location efficiency and sustainability of alternative workplace locations. We expect this indicator to be derived in some way from the other variables available in the SLD. Ideally, this indicator would, roughly, reflect the anticipated difference in either VMT, trip generation, or commute trip mode share that could be expected from a new employment facility located in the block group when compared to a regional or metropolitan average. (Note: EPA does~~

~~*not* anticipate that this indicator could be used to accurately *predict* trip generation, VMT, or mode share.)~~

The second objective of this Task Order is to quantify the effect of SLD variables on VMT per worker, by workplace location. In other words, the contractor shall build upon existing research and conduct additional analysis to quantitatively assess the relationship between individual "D" variables (or interactions between multiple "D" variables) and the VMT of workers who work at that location. Ideally, travel to/from work as well as work-based trips (e.g., lunch) will be included in this analysis. To the extent possible, these findings shall be generalized for relevance to communities across the U.S. EPA recognizes that there may be multiple ways to conceptualize and implement this kind of study ~~indicator~~. Therefore, we will ask the Contractor to propose an approach to measuring workplace location efficiency which builds off of emerging methods in quantifying the relationship between "D" factors and travel demand.

~~Initially, EPA plans to use this new indicator to help GSA assess the relative performance of federal facilities. EPA envisions that this indicator will also be appropriate for facility siting decisions and other site selection analyses outside of the federal government. As with all other variables in the SLD, the contractor will be expected to calculate this metric for every census block group in the U.S.~~

~~A third objective of this work order is to make the SLD more easily accessible to both application developers and end users through the development of two simple ESRI geoprocessing services to run in EPA's new "GeoPlatform" ArcGIS server environment. This RFO invites the contractor to consult with EPA technical staff to structure the SLD in a way that enables it to be hosted in the GeoPlatform environment. The first geoprocessing service returns a modified smart location performance indicator value when given details about a proposed employment facility at a given location. The second geoprocessing service leverages the product of a previous EPA work order[2] which utilizes SLD data. The product is a simple model that estimates impervious surface growth per new unit of residential or commercial development. For each geoprocessing service, we are looking for a simple Web interface that enables end users to enter parameters and get values in return.~~

V. QUALITY ASSURANCE (QA) REQUIREMENTS

The contractor shall submit with their technical proposal a short written Quality Assurance Project Plan since this project generates environmental data.

VI. TASKS AND DELIVERABLES

The Task Order Contracting Officer Representative (TO COR) shall review all deliverables in draft form and provide revisions and/or comments to the contractor. The Contractor shall prepare the final deliverables incorporating the TO COR's comments. The Contractor shall provide the TO COR

[2] The model is currently implemented as a simple excel spreadsheet tool which is available for download at https://edg.epa.gov/data/Public/OP/Smart_Location_DB_v02b.zipIncluded in the zip file is a technical report detailing the model development methodology.

with electronic versions of all deliverables. Deliverables shall be submitted as Microsoft Word documents or in another format that can be easily edited by EPA.

Contractor personnel shall at all times identify themselves as Contractor employees and shall not present themselves as EPA employees. Furthermore, they shall not represent the views of the U.S. Government, EPA, or its employees. In addition, the contractor shall not engage in inherently governmental activities, including the actual determination of EPA policy and preparation of documents on EPA letterhead.

Task 1: Update the SLD to reflect 2010 Census geographic boundaries

II.A.1.c: Spatial Analysis and Geographic Information Systems

In preparation for a project kick-off call, the contractor shall review relevant research into the effect of the built environment at the workplace location on travel. The contractor shall also review SLDv0.2b and all accompanying documentation. The contractor shall also review and evaluate Attachment A -- a list of data elements to be included in the updated SLD. During the project kick-off call, the contractor, TO-COR, and EPA technical staff shall discuss options regarding the overall approach taken to complete Task 1 and Task 2. Given that many of the data variables developed during Task 1 are to be evaluated for affect on VMT in Task 2, it is understood that the two tasks are highly interrelated and must be treated as such.

Based on this discussion ~~review~~, the contractor shall then produce a memo (draft Task 1 memo) with recommendations for updating this geodatabase to reflect information about all census block groups (CBGs) in the U.S. based on 2010 census geographic boundaries[3]. This memo shall feature a table that includes all of the data elements and columns listed in Appendix A. If the contractor proposes an alternative metric or data source for any of the variables, this should be clearly noted in the table. In this memo, the contractor shall also recommend any equivalent alternative data elements that the contractor feels would enhance the usefulness of the new database. The contractor shall also recommend additional relevant demographic or socioeconomic variables that could be included in the new database with little additional effort.

With regard to the variable "Ac_Unpr", or total acres of land that is not protected from development, the contractor shall specify the analysis method with which this variable will be derived. It is suggested that data on the location of parks and protected land areas from NAVTEQ and PADUS be clipped out of Census block groups in order to calculate the total land area of the block group that is not protected from development. Doing so has the potential to provide more accurate density metrics (D1 and maybe D3).

When developing recommendations to include in the draft Task 1 Memo, the contractor shall evaluate whether D5a and D5b (see Attachment A) accessibility metrics could be derived from SLDv0.2b by first assigning accessibility values in SLDv0.2b to a new raster grid. This raster would be constructed by assigning SLDv0.2b accessibility values to Census 2000 block group population-weighted centroids and then interpolating a raster field of accessibility values for points in

[3] Note that EPA has all 2006-2010 American Community Survey data available in a single file geodatabase. Data is available in at the block group level, with full U.S. coverage. TIGER 2010 block group boundaries are also available in this geodatabase. EPA can provide this data to the contractor for the purpose of building the SLD.

between. The evaluation shall consider whether Zonal Statistics (or similar procedure) could then be used to calculate the mean accessibility value for each 2010 census block group. Central to this evaluation will be an assessment of whether changes in block group boundaries between Census 2000 and Census 2010 are drastic enough to undermine the meaningfulness of accessibility metrics derived in the fashion described above. With regards to D5b the contractor shall also evaluate whether significantly better results could be achieved by leveraging an existing SQL database containing all feasible transit + walking trips within 30 minutes (from Census 2000 origin block group population-weighted centroid to Census 2000 destination block group population-weighted centroid)[4] as well as an alternative source of employment data. Furthermore, the contractor shall determine whether an alternative metric of destination accessibility via transit can be developed that supersedes D5b (see discussion of D5c below).

With regard to distance to transit (D4) the contractor shall recommend one or more metrics of transit accessibility at the workplace location that are known to have a significant effect on VMT. To the extent that it is feasible within the scope of this work order, the contractor shall leverage publically available GTFS (general transit feed specification) data sources to calculate these metrics in as many metropolitan regions as possible. However, the contractor shall prioritize the development of these metrics for a subset of metropolitan regions that can serve on the basis for measuring the effect of SLD variables on VMT necessary for completing Task 2.

~~When developing recommendations to include in the draft Task 1 Memo, The contractor shall also evaluate whether it is possible to very roughly calculate D5c (see Attachment A) using publically available data from Center for Transit Oriented Development's (CTOD) TOD Database. This database includes information about each transit stop as well as the transit line served by that stop.~~

With regard to D5c (alternative measure of destination accessibility via transit), the contractor shall evaluate whether publically available data sources (such as GTFS and the CTOD fixed guideway transit service database[5]) can be used to create an enhanced measure with greater coverage than can be provided by D5b. The Contractor shall consider ~~propose a methodology for~~ developing a simple model to identify all CBG accessible from the origin CBG using simple assumptions about walking speed to/from a transit stop, transit speed by vehicle type, and the measured distance between stops on a single line. The Contractor shall identify the level of effort anticipated to complete such an analysis as well as the anticipated usefulness of the resulting dataset.

Upon delivery of the draft Task 1 memo, the contractor shall schedule a conference call with EPA staff. Following this call the TO-COR will provide technical guidance to the contractor regarding proposed data sources and methodologies. Upon receiving this guidance, the contractor shall update the memo, documenting proposed data sources and methodologies. Upon approval of final Task 1 memo by the TO-COR, the contractor shall produce the updated SLD. The new SLD shall be

[4] The SQL database and full documentation will be provided by EPA. See the SLDv0.2 technical report Appendix A for a description of the methodology used to derive this database.
[5] This database includes information about each transit stop as well as the transit line served by that stop. Data will be provided by EPA.

developed as a single ESRI file geodatabase that includes variable data values for every U.S. census block group, unless otherwise indicated in the "coverage" column of Attachment A. For variables that rely on data sources that do not have national coverage (e.g., D4b, D5b), block groups in areas not covered shall be given a value of NULL.

Upon completion of the new SLD, the Contractor shall prepare a draft technical report detailing the data sources and methodology of calculation for each variable. The Contractor shall derive much of the content for this technical report from the final Task 1 memo.

Within 7 days of receiving TO-COR comments on the draft technical report, the contractor shall prepare a final technical report incorporating the TO-COR's comments.

Task 2: Measure the effect of SLD built environment variables on worker VMT

II.A.1.c: Spatial Analysis and Geographic Information Systems

Within two weeks of completing Task 1, the contractor shall develop a technical memorandum that describes proposed research plan for completing Task 2. This plan shall describe the data sources and methods of analysis that the contractor will use to measure the effect of workplace-location SLD variables on VMT per worker relative to other census block groups within the same metropolitan region. As noted above, "VMT per worker" should ideally consider trips to/from work as well as work-based travel (e.g., lunch). The contractor may propose an alternative metric of worker travel if doing so will enhance the feasibility of this task or meaningfulness of findings.

These measures of effect may be assessed with regard to individual SLD variables. Or they may be explored in terms of the interaction between multiple SLD variables, summarized as a spectrum of different place types. It is expected the contractor will obtain travel survey data relevant to travel by workplace location for the purpose of this analysis. EPA technical staff will try to be of assistance in data acquisition if a federal data source is sought.

Upon delivery of the technical memorandum a conference call shall be scheduled with the TO-COR and EPA technical staff to discuss options and approaches. Upon receipt of TO-COR comments on the technical memorandum, the Contractor shall revise the memo as necessary and proceed with the analysis.

Upon completion of analysis, the contractor shall deliver a draft Task 2 Technical Report that details the following:

- A brief literature review describing the relevance of the present study to previous statistical studies of built environment effects on travel by workplace location.
- A description of a data sources used in this study (referencing the Task 1 memo for details, as appropriate).
- A description of the research methodology.
- A presentation of research findings.
- A brief discussion of limitations and areas for further research.
- A discussion of how these research findings could be used to inform the design of a smart location performance indicator that can be used to compare block groups within the same

metropolitan region with regards to relative differences in expected VMT per worker (or similar metric).

Within 7 days of receiving TO-COR comments on draft Task 2 Technical Report, the Contractor shall deliver a final Task 2 Technical Report addressing the TO-COR comments.

~~**Task 2: Develop a smart location performance indicator**~~

~~II.A.1.c: Spatial Analysis and Geographic Information Systems~~

~~Within one week of completing Task 1, the Contractor shall schedule a conference call with the TO-COR and EPA technical staff to discuss needs and options regarding the design and implementation of a new smart location performance indicator. This indicator must be calculated for every block group in the U.S. (although EPA recognizes that some component variables may not be available for every block group).~~

~~In the call the contractor shall discuss the feasibility of creating indicator values that reflect the anticipated difference in either trip generation, VMT, or commute trip mode share that could be expected from a new employment facility located in the block group when compared to an identical facility built at a location which reflects the regional or metropolitan average. Following this call, the TO-COR will provide technical guidance to the contractor regarding the indicator requirements. Drawing upon this guidance and upon emerging methods in quantifying the relationship between "D" factors and travel demand, the contractor shall prepare a draft Task 2 memo recommending methodological approaches to calculating this composite indicator as well as its potential applications that details the following:~~

- ~~A conceptual framework motivating the indicator design (drawing from the transportation research literature as appropriate)~~
- ~~The proposed methodology which will be used to develop the performance indicator~~

~~The Contractor shall schedule an additional conference call with the TO-COR and EPA staff if further discussion and clarification is necessary. Within 10 business days the receipt of TO-COR comments on the draft Task 2 memo, the Contractor shall prepare a final technical memo (Task 2 memo).~~

~~Upon approval of the Task 2 memo from the TO-COR, the contractor shall proceed with the development and implementation of the performance indicator. The Contractor shall deliver this indicator as an Excel spreadsheet. Each variable that contributes to the indictor shall be included as a column. Indicator values shall be calculated dynamically based on the data variables in the spreadsheet. The spreadsheet shall include a row for each census block group in the U.S., identified by its unique 12-digit FIPS code.~~

~~Upon completion of the indicator dataset/spreadsheet, the Contractor shall prepare a short draft technical report which includes the following:~~

- ~~A conceptual framework motivating the indicator design (drawing from the transportation research literature as appropriate)~~
- ~~A technical description of the process by which the indicator formula or model was derived~~

- A brief description (1-2 paragraphs) describing to a novice user how to interpret smart location performance indicator values

The Contractor shall derive much of the content for this technical report from the final Task 2 memo. Within 7 days of receiving TO-COR comments on the Draft Task 2 technical report, the Contractor shall deliver a final Task 2 technical report incorporating all of the TO-COR comments.

Task 3: Create two ESRI geoprocessing services to run on EPA GeoPlatform
II.c: Communications and Outreach

The contractor shall develop two simple ESRI geoprocessing services that will run in EPA's new "GeoPlatform" ArcGIS server environment. For each service, the contractor shall develop a simple web interface that allows a novice end user to enter parameters and receive a value in return. The requirements for each service are described as follows:

1) The first service returns a modified smart location performance indicator value when given details about a proposed employment facility at a given location. That is, the service would recalculate the performance indicator value to reflect conditions in the block group *after* the development of a new employment facility. Optional inputs include but are not limited to:
    - Street address or Latitude and Longitude
    - # of new employees expected at the facility, optionally broken down by employment sector
    - # of new intersections added to the development site
    - Availability of transit service at the location
    - # of working age residents that can access this location within a 30-minute transit commute

   With some or all of this additional information, the Web service would recalculate each of the D variables for the block group and return an updated performance indicator score reflecting those new D values.
2) The second service leverages EPA's Impervious Surface Growth Model (ISGM)[6]. The ISGM estimates impervious surface growth per new unit of residential or commercial development. It operates at the census block group scale and is based on three SLD variables. This new geoprocessing service will return an impervious surface growth estimate (in acres) for a proposed development when given the following inputs:
    - Street address or Latitude and Longitude
    - Number of new housing units expected at the development
    - Number of new, permanent, post construction, employees expected at the development

Within one week of completing Task 2, the Contractor shall schedule a short conference call with the TO-COR and EPA technical staff and EPA GeoPlatform technical support contractors to clarify EPA hosting resources and other technical requirements. Within 10 business days of the conference call, the Contractor shall deliver a draft memo (draft Task 3 memo) detailing the technical approach used to implement each service to the TO-COR for review and comment. If changes to the draft

[6] See footnote #2 above for details and documentation.

~~Task 3 memo are required, the contractor shall submit a revised memo within 7 business days of receiving TO-COR comments.~~

~~Upon TO-COR approval of the Task 3 memo, the Contractor shall proceed with developing the geoprocessing services and web interfaces. The Contractor shall collaborate directly with EPA GeoPlatform technical support contractors, with carbon copies to the TO-COR and EPA technical staff, when necessary to complete the implementation of the two services on EPA GeoPlatform. If the collaboration with EPA's GeoPlatform technical support contractors results in work that is outside of this Task Order or in excess of agreed level of effort, the contractor shall notify the TO-COR to resolve the issue.~~

SCHEDULE FOR DELIVERABLES:

The contractor shall provide the following specific deliverables to the EPA TO-COR:

	DELIVERABLE	**FORM AND QUANTITY**	**SCHEDULE**
Task 1:	Project kick-off discussion	1 (estimated time: 1 hour)	TBD Summer ~~Spring~~ 2012
Task 1:	Task 1 memo	1 memo, 6-10 pages, MS Word format	• Draft memo delivered within 25 business days of project kick-off discussion • Modifications to draft memo delivered within 10 business days of receiving TO-COR comments.
Task 1:	Conference call	1 (estimated time: 1 hour)	Scheduled upon receipt of draft Task 1 memo
Task 1:	Smart Location Database	1 ESRI File Geodatabase containing SLD data values for all census block groups in the U.S.	• Draft SLD delivery TBD • If revisions are necessary, finalized SLD delivered within 7 business days of receiving TO-COR comments.
Task 1:	Task 1 technical report	1 technical report, 12-20 pages, MS Word format	• Draft report delivered with Smart Location Database • If revisions are necessary, final report delivered within 7 business days of receiving TO-COR comments.
~~Task 2:~~	~~Task 2 kick-off conference call~~	~~1 (estimated time: 1 hour)~~	~~Scheduled upon receipt of Final Task 1 technical report~~
Task 2:	Task 2 technical memo	1 memo, 3-5 pages, MS Word format	• Draft memo delivered within 15 business days of Task 2 kick-off conference call. • If revisions are necessary, final Task 2 memo delivered within 7 business days of receiving TO-COR comments.
~~Task 2:~~	~~Smart Location Performance Indicator~~	~~1 Microsoft Excel spreadsheet~~	~~• Delivered within 25 business days of TO-COR approval of Task 2 memo~~ ~~• Modifications to indicator/spreadsheet within 7 business days of receiving TO-COR comments.~~

Task 2:	Task 2 technical report	1 report, ~~4-6~~ 12-20 pages, MS Word format	• ~~Draft report delivered with draft Smart Location Performance Indicator data~~ • Draft report delivered within 30 business days of TO-COR approval of Task 2 technical memo. • If revisions are necessary, final report delivered within 7 business days of TO-COR comments.
~~Task 3:~~	~~Task 3 kick-off conference call~~	~~1 (estimated time: 1 hour)~~	~~Scheduled upon receipt of Final Task 2 technical report~~
~~Task 3:~~	~~Task 3 memo~~	~~1 memo, 2-4 pages, MS Word format~~	~~• Draft memo delivered within 10 business days of Task 3 kick-off conference call.~~ ~~• If revisions are necessary, final memo will be delivered within 7 business days of receiving TO-COR comments.~~
~~Task 3:~~	~~Smart Location Performance Indicator geoprocessing service and interface~~	~~• 1 functional geoprocessing service implemented on EPA GeoPlatform~~ ~~• 1 functional web-based interface tool for end user~~	~~Completed within 15 business days of Task 3 memo approval.~~
~~Task 3:~~	~~ISGM geoprocessing service and interface~~	~~• 1 functional geoprocessing service implemented on EPA GeoPlatform~~ ~~• 1 functional web-based interface tool for end user~~	~~Completed within 25 business days of Task 3 memo approval.~~

References

Cervero, R. and K. Kockelman. "Travel Demand and the 3Ds: Density, Diversity, and Design." *Transportation Research Part D*, Vol. 2, 1997, pp. 199–219.

Ewing, R., K. Bartholomew, S. Winkelman, J. Walters, and D. Chen. 2007. *Growing Cooler: The Evidence on Urban Development and Climate Change*. Urban Land Institute.

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE OF PAGES
	1 2

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. *(If applicable)*
001	See Block 16C	PR-OA-12-00150	

6. ISSUED BY	CODE	7. ADMINISTERED BY *(If other than Item 6)*	CODE
HPOD	HPOD	HPOD	HPOD

HPOD
US Environmental Protection Agency
Headquarters Procurement Operations
Ariel Rios Building
1200 Pennsylvania Avenue, NW
Washington DC 20460

HPOD
US Environmental Protection Agency
Headquarters Procurement Operations
Ariel Rios Building
1200 Pennsylvania Avenue, NW
Washington DC 20460

8. NAME AND ADDRESS OF CONTRACTOR *(No., street, county, State and ZIP Code)*

RENAISSANCE PLANNING GROUP, INC.
Attn: NA
121 S ORANGE AVE STE 1200
Orlando FL 32801

CODE (b)(4) FACILITY CODE

(x) 9A. AMENDMENT OF SOLICITATION NO.

9B. DATED *(SEE ITEM 11)*

x 10A. MODIFICATION OF CONTRACT/ORDER NO.
EP-W-11-009
0016

10B. DATED *(SEE ITEM 13)*
09/26/2012

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended, ☐ is not extended.
Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA *(If required)*
See Schedule

13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

CHECK ONE	
	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: *(Specify authority)* THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES *(such as changes in paying office, appropriation date, etc.)* SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
X	D. OTHER *(Specify type of modification and authority)* 52.243-2 -- Changes -- Cost-Reimbursement

E. IMPORTANT: Contractor ☒ is not, ☐ is required to sign this document and return 0 copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION *(Organized by UCF section headings, including solicitation/contract subject matter where feasible.)*

DUNS Number: (b)(4)
Task Order #0016: Enhancing EPA's Smart Location Database and Performance Indicator
TOPO: Brett Van Akkeren Max Expire Date: 01/25/2013
The purpose of this modification is to extend the period of performance of the TO from 01/25/2013 to 07/05/2013 at no additional cost to the government. This modification also approves the contractors revised deliverable schedule dated 01/10/2013. All other terms and conditions of the contract remain unchanged.

LIST OF CHANGES:
Reason for Modification : Change Order
Period Of Performance End Date changed from 25-JAN-13 to 05-JUL-13
Continued ...

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER *(Type or print)*	16A. NAME AND TITLE OF CONTRACTING OFFICER *(Type or print)*
	Kathryn Barton

15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
(Signature of person authorized to sign)		*(Signature of Contracting Officer)*	

NAME OF OFFEROR OR CONTRACTOR
RENAISSANCE PLANNING GROUP, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	HANGES FOR LINE ITEM NUMBER: 1 End Date changed from 25-JAN-13 to 05-JUL-13 Delivery Location Code: HPOD HPOD US Environmental Protection Agency Ariel Rios Building 1200 Pennsylvania Avenue, N. W. Mail Code: 3803R Washington DC 20460 USA Payment: RTP Finance Center US Environmental Protection Agency RTP-Finance Center (D143-02) 109 TW Alexander Drive Durham NC 27711 FOB: Destination Period of Performance: 09/26/2012 to 07/05/2013				

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE OF PAGES
	1 10

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. *(If applicable)*
002	See Block 16C	See Schedule	

6. ISSUED BY CODE HPOD

HPOD
US Environmental Protection Agency
Headquarters Procurement Operations
Ariel Rios Building
1200 Pennsylvania Avenue, NW
Washington DC 20460

7. ADMINISTERED BY *(If other than Item 6)* CODE

8. NAME AND ADDRESS OF CONTRACTOR *(No., street, county, State and ZIP Code)*

RENAISSANCE PLANNING GROUP, INC.
Attn: NA
121 S ORANGE AVE STE 1200
Orlando FL 32801

CODE (b)(4) FACILITY CODE

(x) 9A. AMENDMENT OF SOLICITATION NO.

9B. DATED *(SEE ITEM 11)*

x 10A. MODIFICATION OF CONTRACT/ORDER NO.
EP-W-11-009
0016

10B. DATED *(SEE ITEM 13)*
09/26/2012

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

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Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA *(If required)*
See Schedule

Net Increase: $4,816.14

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X	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF: FAR 52.243-2(a)(1) Changes - Cost-Reimbursement (Alt I), in accordance with FAR 43.204(a)
	D. OTHER *(Specify type of modification and authority)*

E. IMPORTANT: Contractor ☐ is not, ☒ is required to sign this document and return 1 copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION *(Organized by UCF section headings, including solicitation/contract subject matter where feasible.)*

DUNS Number: (b)(4)
Task Order #0016: Enhancing EPA's Smart Location Database and Performance Indicator
TOPO: Brett Van Akkeren Max Expire Date: 10/30/2013
The purpose of this modification is to:

(1) Incorporate changes made to the statement of work (attached);

(2) Extend the period of performance from June 30, 2013 to October 30, 2013; and

(3) Add additional funding in the amount of $4,816.14 to fully fund changes made to the statement of work in accordance with the contractors revised cost estimate dated 7/15/2013.
Continued ...

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER *(Type or print)*		16A. NAME AND TITLE OF CONTRACTING OFFICER *(Type or print)*	
		Kathryn Barton	
15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
(Signature of person authorized to sign)		*(Signature of Contracting Officer)*	

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)

In accordance with FAR 43.204(c) by signing this supplemental agreement to the contract, the contractor hereby releases the Government from any further equitable adjustments attributable to this change, except for those cost associated with indirect rate adjustments.

LIST OF CHANGES:
Reason for Modification : Supplemental Agreement for work within scope
Period Of Performance End Date changed from 2013-07-05 00:00:00 to 2013-10-30 00:00:00
Total Amount for this Modification: $4,816.14
New Total Amount for this Version: $69,656.94
New Total Amount for this Award: $69,656.94
Obligated Amount for this Modification: $4,816.14
New Total Obligated Amount for this Award: $69,656.94
Incremental Funded Amount changed: from $64,840.80 to $69,656.94

Maximum Potential Expiration Date changed to : 10/30/2013

CHANGES FOR LINE ITEM NUMBER: 1

Description changed to:

Technical Assistance under EP-W-11-009, Task Order #0016: Enhancing EPA's Smart Location Database and Performance Indicator to be performed in accordance with the attached Statement of Work and the vendor's proposal dated July 27, 2012.*

Ceilings and Funded Amounts: (Original)

Cost: (b)(4)
Fee: (b)(4)
CPFF: $64,840.80

* and in accordance with SOW changes applied in contract modification 2 and the contractors approved cost estimate dated 7/15/2013. Below is the revised ceiling and funding amounts:

Cost: $66,369.24
Fee: $3,287.7
Continued ...

NAME OF OFFEROR OR CONTRACTOR
RENAISSANCE PLANNING GROUP, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	CPFF: $69,656.94 Total Amount changed from $64,840.80 to $69,656.94 Obligated Amount for this modification: $4,816.14 Incremental Funded Amount changed from $64,840.80 to $69,656.94 End Date changed from 2013-07-05 00:00:00 to 2013-10-30 00:00:00 NEW ACCOUNTING CODE ADDED: Account code: 13-14-B-11W-301MA4-2505---1311W31026-001 Amount: $4,816.14 Payment Address: RTP Finance Center US Environmental Protection Agency RTP-Finance Center (D143-02) 109 TW Alexander Drive Durham NC 27711 Payment: RTP Finance Center US Environmental Protection Agency RTP-Finance Center (D143-02) 109 TW Alexander Drive Durham NC 27711 FOB: Destination Period of Performance: 09/26/2012 to 10/30/2013				

Statement of Work
Contract Number: EP-W-11-009/EP-W-11-010/EP-W-11-011
RFO Number: 16

I. TITLE: Enhancing EPA's Smart Location Database and Performance Indicator

II. PERIOD OF PERFORMANCE: Issuance to October 30, ~~January 25~~ 2013

III. BACKGROUND:

Research studies indicate that the location of new homes and businesses can have an enormous effect on the travel behavior of people who will live and work there. For example, buildings in walkable communities that are well-served by transit can support a far greater variety of transportation choices than those in more automobile-dependent locations. Focusing new development in such areas can help reduce motor vehicle emissions and water pollution from roadway run-off. There is a growing demand among communities and facility managers for data products and tools that enable users to consistently compare multiple places based on characteristics of the build environment and urban form that shape travel behavior. In 2011 EPA's Office of Sustainable Communities began work to address this need through the development of the Smart Location Database (SLD). A beta version of this database (SLDv0.2b) was released publically in January 2012.[1] SLDv0.2b characterizes every Census 2000 block group in the U.S. using several variables which are demonstrated in the transportation research literature to have a measureable effect on travel demand. These variables are all related to factors known as the "five Ds" (Cervero and Kockelman 1997; Ewing et al. 2007): *density* (of population, housing, or jobs), land use *diversity*, urban *design*, *destination* accessibility, and *distance* to transit. Whereas many residential travel demand studies focus on accessibility of residential locations to jobs, SLDv0.2b also characterizes the accessibility of a location to working-age population. This latter category of variables may be of use in employment facility siting decisions.

SLDv0.2b is currently being used by EPA's Office of Sustainable Communities in collaboration with Office of Solid Waste and Emergency Response to evaluate the potential air and water quality impacts of redeveloping brownfields that have received EPA assistance. For instance, using the D measures it is possible to roughly compare the Vehicle Miles Traveled (VMT) generated by new households in redeveloped brownfields properties when compared to new households in the fastest growing areas of the same metropolitan region. SLDv0.2b has also been used to develop a model for estimating new impervious surface area associated with residential and commercial development based on location. This model is being used to compare impervious surface growth associated with brownfield redevelopment when compared to the alternative likely development scenario.

EPA is currently exploring how we can make future versions of the SLD freely accessible to practitioners by direct download and Web service. We hope that making this data freely available will make it cheaper and easier for communities to conduct travel demand or scenario planning

[1] A zip file with the entire SLD geodatabase, a detailed technical report, and a data dictionary is available for download at https://edg.epa.gov/data/Public/. Click to expand the "Office of Policy" folder. The file is named SLDv02b.zip.

analyses. Access to this data would be particularly helpful to local and regional governments that lack extensive GIS capabilities and/or sophisticated travel forecasting models.

In addition to raw data about "D" variables, non-technical users of the data need simplified metrics representing the overall performance of a place in terms of its ability to support sustainable travel choices. For instance, the General Services Administration seeks to develop a location efficiency key performance indicator for use in consistently assessing individual federal facilities as well as proposed federal facility locations. GSA also requires the ability to identify facilities that perform significantly worse than the regional average in terms of location efficiency. Such an indicator would support GSA and its clients in meeting their sustainability goals under Executive Order 13514 and other directives. EPA is working with GSA to develop this indicator, drawing on the Smart Location Database.

To date there have been only a limited number of studies that measure the effect of the built environment on attracted trips at the workplace location. EPA's work to eventually develop a sustainable location performance indicator for workplaces requires first surveying and expanding on previous research in order to develop more robust quantitative measures that can be generalized for metropolitan regions across the U.S.

IV. PURPOSE AND OBJECTIVE:

There are two key objectives that this Task Order will address. First is to develop a new version of the SLD using Census 2010 geographic boundaries. The purpose of this activity is to make the SLD easier to update as new Census data become available and to incorporate new variables known to have a significant effect on attracted trips at the workplace location. For some of the regional accessibility metrics, the data values in SLDv0.2b, we are looking for a simple reaggregation to the new 2010 boundaries (see task description below for details). Some other metrics will need to be gathered and/or recalculated from scratch. Specifically, EPA is aware that the intersection density metric currently available in SLDv0.2b has both technical and conceptual problems that need to be addressed to improve its accuracy, reliability, and usability. Additionally, the land use diversity metric may benefit from considering a larger set of employment categories. Since EPA will be asking the contractor to make technical recommendations regarding ~~minor~~ refinements to metric calculations that will enhance the usability of the SLD for transportation practitioners, the personnel working on this Task Order will need to demonstrate considerable experience working with "D" variables in travel demand studies.

This Task Order will also expand the new SLD by adding additional demographic and socioeconomic variables relevant to travel demand. See Attachment A.

The second objective of this Task Order is to quantify the effect of SLD variables on VMT per worker, by workplace location. In other words, the contractor shall build upon existing research and conduct additional analysis to quantitatively assess the relationship between individual "D" variables (or interactions between multiple "D" variables) and the VMT of workers who work at that location. Ideally, travel to/from work as well as work-based trips (e.g., lunch) will be included in this analysis. To the extent possible, these findings shall be generalized for relevance to

communities across the U.S. EPA recognizes that there may be multiple ways to conceptualize and implement this kind of study ~~indicator~~. Therefore, we will ask the Contractor to propose an approach to measuring workplace location efficiency which builds off of emerging methods in quantifying the relationship between "D" factors and travel demand.

V. QUALITY ASSURANCE (QA) REQUIREMENTS

The contractor shall submit with their technical proposal a short written Quality Assurance Project Plan since this project generates environmental data.

VI. TASKS AND DELIVERABLES

The Task Order Contracting Officer Representative (TO COR) shall review all deliverables in draft form and provide revisions and/or comments to the contractor. The Contractor shall prepare the final deliverables incorporating the TO COR's comments. The Contractor shall provide the TO COR with electronic versions of all deliverables. Deliverables shall be submitted as Microsoft Word documents or in another format that can be easily edited by EPA.

Contractor personnel shall at all times identify themselves as Contractor employees and shall not present themselves as EPA employees. Furthermore, they shall not represent the views of the U.S. Government, EPA, or its employees. In addition, the contractor shall not engage in inherently governmental activities, including the actual determination of EPA policy and preparation of documents on EPA letterhead.

Task 1: Update the SLD to reflect 2010 Census geographic boundaries

II.A.1.c: Spatial Analysis and Geographic Information Systems

In preparation for a project kick-off call, the contractor shall review relevant research into the effect of the built environment at the workplace location on travel. The contractor shall also review SLDv0.2b and all accompanying documentation. The contractor shall also review and evaluate Attachment A -- a list of data elements to be included in the updated SLD. During the project kick-off call, the contractor, TO-COR, and EPA technical staff shall discuss options regarding the overall approach taken to complete Task 1 and Task 2. Given that many of the data variables developed during Task 1 are to be evaluated for affect on VMT in Task 2, it is understood that the two tasks are highly interrelated and must be treated as such.

Based on this discussion, the contractor shall then produce a memo (draft Task 1 memo) with recommendations for updating this geodatabase to reflect information about all census block groups (CBGs) in the U.S. based on 2010 census geographic boundaries[2]. This memo shall feature a table that includes all of the data elements and columns listed in Appendix A. If the contractor proposes an alternative metric or data source for any of the variables, this should be clearly noted in the table. In this memo, the contractor shall also recommend any equivalent alternative data elements that the contractor feels would enhance the usefulness of the new database. The

[2] Note that EPA has all 2006-2010 American Community Survey data available in a single file geodatabase. Data is available in at the block group level, with full U.S. coverage. TIGER 2010 block group boundaries are also available in this geodatabase. EPA can provide this data to the contractor for the purpose of building the SLD.

contractor shall also recommend additional relevant demographic or socioeconomic variables that could be included in the new database with little additional effort.

With regard to the variable "Ac_Unpr", or total acres of land that is not protected from development, the contractor shall specify the analysis method with which this variable will be derived. It is suggested that data on the location of parks and protected land areas from NAVTEQ and PADUS be clipped out of Census block groups in order to calculate the total land area of the block group that is not protected from development. Doing so has the potential to provide more accurate density metrics (D1 and maybe D3).

When developing recommendations to include in the draft Task 1 Memo, the contractor shall evaluate whether D5a and D5b (see Attachment A) accessibility metrics could be derived from SLDv0.2b by first assigning accessibility values in SLDv0.2b to a new raster grid. This raster would be constructed by assigning SLDv0.2b accessibility values to Census 2000 block group population-weighted centroids and then interpolating a raster field of accessibility values for points in between. The evaluation shall consider whether Zonal Statistics (or similar procedure) could then be used to calculate the mean accessibility value for each 2010 census block group. Central to this evaluation will be an assessment of whether changes in block group boundaries between Census 2000 and Census 2010 are drastic enough to undermine the meaningfulness of accessibility metrics derived in the fashion described above. With regards to D5b the contractor shall also evaluate whether significantly better results could be achieved by leveraging an existing SQL database containing all feasible transit + walking trips within 30 minutes (from Census 2000 origin block group population-weighted centroid to Census 2000 destination block group population-weighted centroid)[3] as well as an alternative source of employment data. Furthermore, the contractor shall determine whether an alternative metric of destination accessibility via transit can be developed that supersedes D5b (see discussion of D5c below).

The contractor shall develop a methodology for calculating a revised variable D5br – Jobs within a 30 minute transit commute- to include the possibility of the traveler making one transfer for each potential commute. The contractor shall also prepare the necessary data used in this variable for analysis by EPA. The contractor shall document this methodology and data preparation as part of the task 1 technical report.

With regard to distance to transit (D4) the contractor shall recommend one or more metrics of transit accessibility at the workplace location that are known to have a significant effect on VMT. To the extent that it is feasible within the scope of this work order, the contractor shall leverage publically available GTFS (general transit feed specification) data sources to calculate these metrics in as many metropolitan regions as possible. However, the contractor shall prioritize the development of these metrics for a subset of metropolitan regions that can serve on the basis for measuring the effect of SLD variables on VMT necessary for completing Task 2.

[3] The SQL database and full documentation will be provided by EPA. See the SLDv0.2 technical report Appendix A for a description of the methodology used to derive this database.

With regard to D5c (alternative measure of destination accessibility via transit), the contractor shall evaluate whether publically available data sources (such as GTFS and the CTOD fixed guideway transit service database[4]) can be used to create an enhanced measure with greater coverage than can be provided by D5b. The Contractor shall consider ~~propose a methodology for~~ developing a simple model to identify all CBG accessible from the origin CBG using simple assumptions about walking speed to/from a transit stop, transit speed by vehicle type, and the measured distance between stops on a single line. The Contractor shall identify the level of effort anticipated to complete such an analysis as well as the anticipated usefulness of the resulting dataset.

Upon delivery of the draft Task 1 memo, the contractor shall schedule a conference call with EPA staff. Following this call the TO-COR will provide technical guidance to the contractor regarding proposed data sources and methodologies. Upon receiving this guidance, the contractor shall update the memo, documenting proposed data sources and methodologies. Upon approval of final Task 1 memo by the TO-COR, the contractor shall produce the updated SLD. The new SLD shall be developed as a single ESRI file geodatabase that includes variable data values for every U.S. census block group, unless otherwise indicated in the "coverage" column of Attachment A. For variables that rely on data sources that do not have national coverage (e.g., D4b, D5b), block groups in areas not covered shall be given a value of NULL.

Upon completion of the new SLD, the Contractor shall prepare a draft technical report detailing the data sources and methodology of calculation for each variable. The Contractor shall derive much of the content for this technical report from the final Task 1 memo.

Within 7 days of receiving TO-COR comments on the draft technical report, the contractor shall prepare a final technical report incorporating the TO-COR's comments.

Task 2: Measure the effect of SLD built environment variables on worker VMT

II.A.1.c: Spatial Analysis and Geographic Information Systems

Within two weeks of completing Task 1, the contractor shall develop a technical memorandum that describes proposed research plan for completing Task 2. This plan shall describe the data sources and methods of analysis that the contractor will use to measure the effect of workplace-location SLD variables on VMT per worker relative to other census block groups within the same metropolitan region. As noted above, "VMT per worker" should ideally consider trips to/from work as well as work-based travel (e.g., lunch). The contractor may propose an alternative metric of worker travel if doing so will enhance the feasibility of this task or meaningfulness of findings.

These measures of effect may be assessed with regard to individual SLD variables. Or they may be explored in terms of the interaction between multiple SLD variables, summarized as a spectrum of different place types. It is expected the contractor will obtain travel survey data relevant to travel by workplace location for the purpose of this analysis. EPA technical staff will try to be of assistance in data acquisition if a federal data source is sought.

[4] This database includes information about each transit stop as well as the transit line served by that stop. Data will be provided by EPA.

Upon delivery of the technical memorandum a conference call shall be scheduled with the TO-COR and EPA technical staff to discuss options and approaches. Upon receipt of TO-COR comments on the technical memorandum, the Contractor shall revise the memo as necessary and proceed with the analysis.

Upon completion of analysis, the contractor shall deliver a draft Task 2 Technical Report that details the following:

- A brief literature review describing the relevance of the present study to previous statistical studies of built environment effects on travel by workplace location.
- A description of a data sources used in this study (referencing the Task 1 memo for details, as appropriate).
- A description of the research methodology.
- A presentation of research findings.
- A brief discussion of limitations and areas for further research.
- A discussion of how these research findings could be used to inform the design of a smart location performance indicator that can be used to compare block groups within the same metropolitan region with regards to relative differences in expected VMT per worker (or similar metric).

Within 7 days of receiving TO-COR comments on draft Task 2 Technical Report, the Contractor shall deliver a final Task 2 Technical Report addressing the TO-COR comments.

SCHEDULE FOR DELIVERABLES: (See Contract Modification 1 for revisions made to deliverable schedule)

The contractor shall provide the following specific deliverables to the EPA TO-COR:

	DELIVERABLE	**FORM AND QUANTITY**	**SCHEDULE**
Task 1:	Project kick-off discussion	1 (estimated time: 1 hour)	TBD Summer 2012
Task 1:	Task 1 memo	1 memo, 6-10 pages, MS Word format	• Draft memo delivered within 25 business days of project kick-off discussion • Modifications to draft memo delivered within 10 business days of receiving TO-COR comments.
Task 1:	Conference call	1 (estimated time: 1 hour)	Scheduled upon receipt of draft Task 1 memo
Task 1:	Smart Location Database	1 ESRI File Geodatabase containing SLD data values for all census block groups in the U.S.	• Draft SLD delivery TBD • If revisions are necessary, finalized SLD delivered within 7 business days of receiving TO-COR comments.

Task 1:	Task 1 technical report	1 technical report, 12-20 pages, MS Word format	• Draft report delivered with Smart Location Database • If revisions are necessary, final report delivered within 7 business days of receiving TO-COR comments.
Task 2:	Task 2 technical memo	1 memo, 3-5 pages, MS Word format	• Draft memo delivered within 15 business days of Task 2 kick-off conference call. • If revisions are necessary, final Task 2 memo delivered within 7 business days of receiving TO-COR comments.
Task 2:	Task 2 technical report	1 report, 12-20 pages, MS Word format	• Draft report delivered within 30 business days of TO-COR approval of Task 2 technical memo. • If revisions are necessary, final report delivered within 7 business days of TO-COR comments.

References

Cervero, R. and K. Kockelman. "Travel Demand and the 3Ds: Density, Diversity, and Design." *Transportation Research Part D*, Vol. 2, 1997, pp. 199–219.

Ewing, R., K. Bartholomew, S. Winkelman, J. Walters, and D. Chen. 2007. *Growing Cooler: The Evidence on Urban Development and Climate Change*. Urban Land Institute.

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE OF PAGES
	1 2

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. *(If applicable)*
003	See Block 16C	PR-OA-13-00043	

6. ISSUED BY CODE HPOD

HPOD
US Environmental Protection Agency
Headquarters Procurement Operations
Ariel Rios Building
1200 Pennsylvania Avenue, NW
Washington DC 20460

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RENAISSANCE PLANNING GROUP, INC.
Attn: NA
121 S ORANGE AVE STE 1200
Orlando FL 32801

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9B. DATED *(SEE ITEM 11)*

x 10A. MODIFICATION OF CONTRACT/ORDER NO. EP-W-11-009
0016

10B. DATED *(SEE ITEM 13)* 09/26/2012

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	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
X	D. OTHER *(Specify type of modification and authority)* Period of performance extension in accordance with FAR 43.103(a)(3)

E. IMPORTANT: Contractor ☐ is not, ☒ is required to sign this document and return 1 copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION *(Organized by UCF section headings, including solicitation/contract subject matter where feasible.)*

DUNS Number: (b)(4)
Task Order #0016: Enhancing EPA's Smart Location Database and Performance Indicator
TOPO: Brett Van Akkeren Max Expire Date: 01/14/2014

The purpose of this modification is to extend the Task Order period of performance from October 30, 2013 to January 14, 2014 at no additional cost to the government.

LIST OF CHANGES:
Reason for Modification : Other Administrative Action
Period Of Performance End Date changed from 2013-10-30 00:00:00 to 2014-01-14 00:00:00
Continued ...

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER *(Type or print)*	16A. NAME AND TITLE OF CONTRACTING OFFICER *(Type or print)*
	Kathryn Barton

15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
(Signature of person authorized to sign)		*(Signature of Contracting Officer)*	

NAME OF OFFEROR OR CONTRACTOR
RENAISSANCE PLANNING GROUP, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	Maximum Potential Expiration Date changed to : 01/14/2014 CHANGES FOR LINE ITEM NUMBER: 1 End Date changed from 2013-10-30 00:00:00 to 2014-01-14 00:00:00 Payment: RTP Finance Center US Environmental Protection Agency RTP-Finance Center (D143-02) 109 TW Alexander Drive Durham NC 27711 FOB: Destination Period of Performance: 09/26/2012 to 01/14/2014				

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE OF PAGES
	1 3

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. *(If applicable)*
004	See Block 16C		

6. ISSUED BY	CODE	7. ADMINISTERED BY *(If other than Item 6)*	CODE
HPOD	HPOD		

HPOD
US Environmental Protection Agency
Headquarters Procurement Operations
Ariel Rios Building
1200 Pennsylvania Avenue, NW
Washington DC 20460

8. NAME AND ADDRESS OF CONTRACTOR *(No., street, county, State and ZIP Code)*

RENAISSANCE PLANNING GROUP, INC.
Attn: NA
121 S ORANGE AVE STE 1200
Orlando FL 32801

CODE (b)(4) FACILITY CODE

(x) 9A. AMENDMENT OF SOLICITATION NO.

9B. DATED *(SEE ITEM 11)*

x 10A. MODIFICATION OF CONTRACT/ORDER NO.
EP-W-11-009
0016

10B. DATED *(SEE ITEM 13)*
09/26/2012

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended, ☐ is not extended.
Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA *(If required)*
See Schedule

Net Decrease: -$502.39

13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

CHECK ONE	
	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: *(Specify authority)* THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES *(such as changes in paying office, appropriation date, etc.)* SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
X	D. OTHER *(Specify type of modification and authority)* FAR 52.243-2 - Changes -- Cost Reimbursement (AUG 1987) Alternate I (APR 1984)

E. IMPORTANT: Contractor ☐ is not, ☒ is required to sign this document and return 1 copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION *(Organized by UCF section headings, including solicitation/contract subject matter where feasible.)*

DUNS Number: (b)(4)
Task Order #0016: Enhancing EPA's Smart Location Database and Performance Indicator
TOPO: Brett Van Akkeren Max Expire Date: 01/14/2014
The purpose of this modification is to:

1. Incorporate both FAR 52.232-22 - Limitation of Funds (APR 1984) and EPA local clause EPA-B-32-101 - Limitation of Funds Notice (APR 1984) into the task order contract; and

2. Deobligate excess funds in the amount of $502.39.

LIST OF CHANGES:
Continued ...

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER *(Type or print)*	16A. NAME AND TITLE OF CONTRACTING OFFICER *(Type or print)*
	Jennifer Kuhn

15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B.	16C. DATE SIGNED
_____ *(Signature of person authorized to sign)*		ELECTRONIC SIGNATURE	09/16/2014

NSN 7540-01-152-8070
Previous edition unusable

STANDARD FORM 30 (REV. 10-83)
Prescribed by GSA
FAR (48 CFR) 53.243

NAME OF OFFEROR OR CONTRACTOR
RENAISSANCE PLANNING GROUP, INC.

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	Obligated Amount for this Modification: -$502.39 New Total Obligated Amount for this Award: $69,154.55 Incremental Funded Amount changed: from $69,656.94 to $69,154.55 CHANGES FOR LINE ITEM NUMBER: 1 Obligated Amount for this modification: -$502.39 Incremental Funded Amount changed from $69,656.94 to $69,154.55 CHANGES FOR ACCOUNTING CODE: 13-14-B-11W-301MA4-2505---1311W31026-001 Amount changed from $4,816.14 to $4,313.75 Payment: RTP Finance Center US Environmental Protection Agency RTP-Finance Center (D143-02) 109 TW Alexander Drive Durham NC 27711 FOB: Destination Period of Performance: 09/26/2012 to 01/14/2014 Delivery Location Code: HPOD HPOD US Environmental Protection Agency Ariel Rios Building 1200 Pennsylvania Avenue, N. W. Mail Code: 3803R Washington DC 20460 USA				